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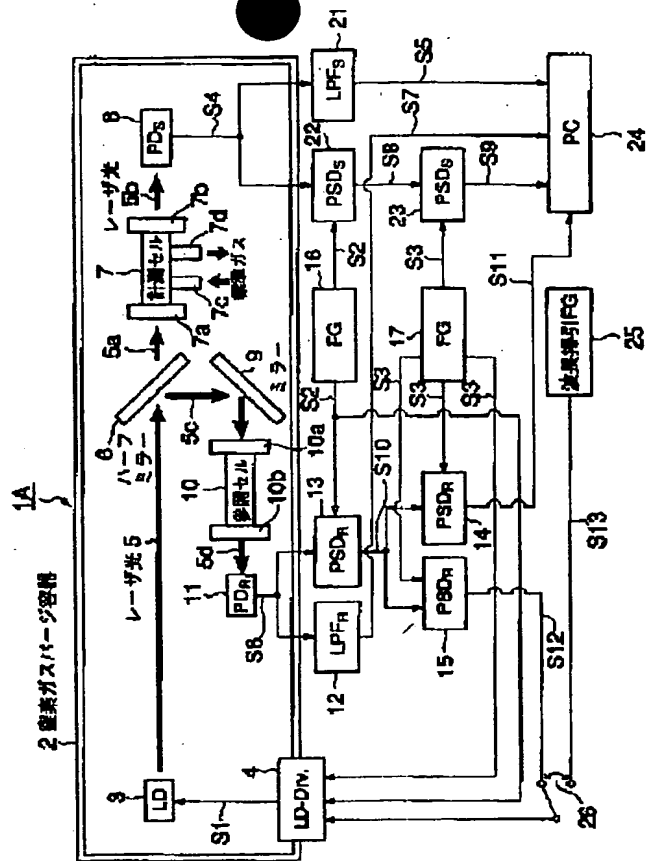
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TITLE : GAS CONCENTRATION MEASURING APPARATUS AND COMBUSTION FURNACE



ABSTRACT : PROBLEM TO BE SOLVED: To obtain a gas concn. measuring apparatus capable of simultaneously measuring the concn. of gas and the concentration of solid particles with high accuracy even in the coexistence of coexisting component gas and solid particles without disturbing and pre- processing the state of a measuring region, capable of stably performing measurement over a long period of time without generating a drift in measured values, low in cost and excellent in operability and response.

SOLUTION: A gas concentration measuring apparatus has light source parts 3, 4 capable of adjusting laser oscillation wavelengths to the absorption wavelengths inherent to a plurality of present gases to be measured, modulation parts 16, 17, 25 applying modulation to the laser oscillation wavelengths oscillated from the light source parts to output the reference signals synchronized to the modulation, light receiving parts 8, 11 receiving the laser beams passed through the target gases in a measuring region to output signals corresponding to the intensities of the received beams, phase sensitive detection parts 13, 14, 15, 22, 23 detecting the components synchronized to the modulation signals added to laser beam or the higher harmonic components from the signals of the light receiving parts on the basis of the reference signals outputted from the modulation parts to output them and an analyzing part 24 for calculating the concns. of the target gases in the measuring region and the concn. of solid particles on the basis of the signals outputted from the phase sensitive detection parts and the signals from the light receiving parts.

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